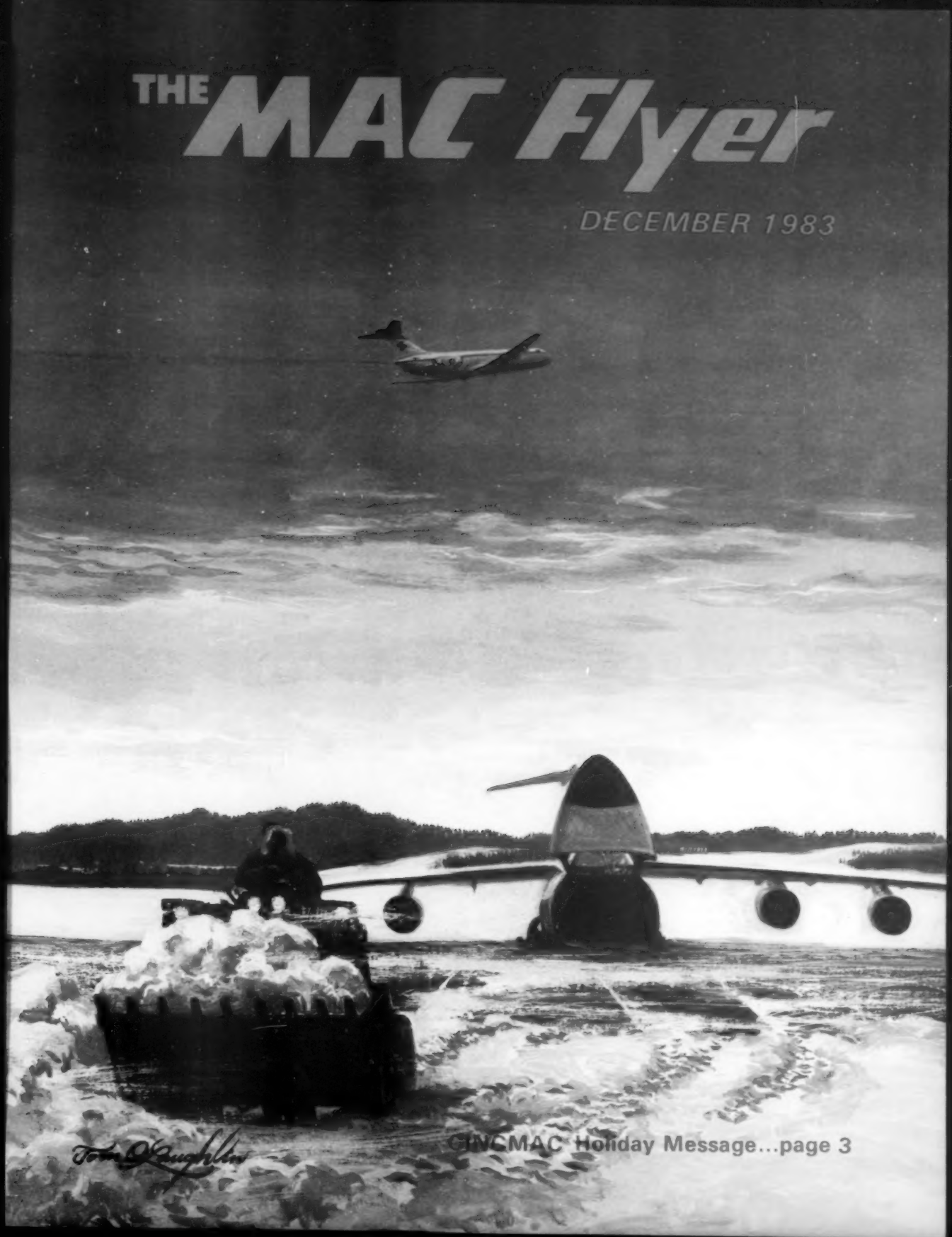
THE MAC Flyer

DECEMBER 1983



CINCMAC Holiday Message...page 3

THE MAC Flyer

For Greater Safety in MAC Air Operations

DECEMBER 1983 MACRP 127-5 VOL XXX NO. 12

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page 16

page 24

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Features

3 **CINCMAC Holiday Message**
General Ryan shares his hopes for the holidays.

4 **Landing Expectancy**
Some approaches *are* better the second time around.

8 **Call Billy Joe**
A must when flying around Arm, Mississippi.

16 **The Fifth Orange**
Can one officer change the course of fate?

20 **Stardate Stories**
Get ready to write for safety!

21 **Metric Minima**
What you hear is what you get.

24 **C.R. Terror**
The Holiday Honcho spruces up the capital.

Departments

6 **Excellence in Airmanship**
11 **World Aircraft Recognition Guide**
12 **Flying-Hour Milestones**
13 **Mishap with a Moral**
23 **Deja Vu**
27 **Quick Stoppers**
30 **After Deadlines**
31 **The MAC Flyer 1983 Index**

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CINCMAC Holiday Message

It hardly seems possible, but another year is nearly over—a very exciting and successful time for the Military Airlift Command. Reflecting on my first 6 months as CINCMAC, I'd like to review some of our accomplishments during this period.

First of all, I'm extremely proud of all of you. You've performed the difficult and diverse tasks of airlift, aeromedical evacuation, special operations, audiovisual support, rescue and recovery and weather support, safely, efficiently and with great dedication and professionalism. You've responded admirably to every task, and your ability to get the job done in 1983 has been outstanding—in every way!

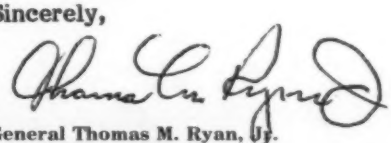
Your safety accomplishments during the past 12 months deserve special recognition. The disheartening year of 1982 provided us with a difficult challenge—and you met it. You recognized the need to improve, and each of you put forth the extra effort to ensure we did the job safely. The results speak for themselves—our 1983 flying safety record is, overall, one of the best in the command's history. I applaud you and thank you for your efforts.

I'm pleased, as well, that 1983 brought us approval to purchase or lease some much-needed new aircraft. Not only did Congress approve funding for the C-5B, but we also received approval for continued C-17 development and the CRAF Enhancement program. Coupled with funding for the C-20A Gulfstream III, the C-21A Lear 35A, the C-12F Beechcraft B200C, the Sikorsky HH-60D "Night Hawk," and additional MC-130Hs, 1983 will be remembered as an important year in the command's force modernization efforts.

But I want each of you to look forward, as well. We must all dedicate ourselves toward making 1984 an even better year. Not only must we continue to improve our safety record, but we have to be ready to accomplish each task we are given, no matter how difficult or demanding. That's a challenge we can meet, if we all work together.

Finally, Mrs. Ryan and I want to wish you and your families a most joyous holiday season and all the best in 1984. We look forward to working closely with you in the year ahead.

Sincerely,



General Thomas M. Ryan, Jr.
Commander in Chief
Military Airlift Command

LANDING EXPECTANCY

Some approaches *are* better the second time around.

by Capt. Byron L. Howard
Associate Editor

Editor's Note: **Recently, MAC aircraft have been involved in a number of incidents which have resulted in near catastrophe. Underlying these incidents has been the psychological mind set termed "landing expectancy." We're reprinting an article from the December 1981 *TMF* to try to instill an appreciation of this phenomenon in our readers. Take the lessons to heart.**

"Did you get the weather for the home-drome, copilot?"

"Affirmative, boss. Should be a 'no-sweat' approach if there ever was one. Metro said the weather was 25,000 feet scattered, with the winds light and variable."

"Super! Okay, crew, we'll shoot the ILS to runway 29 just for practice. Missed approach procedures will be as published. Are there any questions?" (The silence is deafening.)

Sounds familiar, doesn't it? In the rush to get into the chocks it may be the same briefing you've heard or given quite a few times. After all, it complies with requirements in the briefing guide. I mean, it says right there in black and yellow, "missed approach." So you say, "Standard! As published. Always have and always will, especially if the weather is severe clear." But before you take offense, let me throw some ideas at you that just may keep you on the safe side of the most critical phase of flight. Let's go back to the beginning of this tale with you in the pilot's seat and with me playing the part of "devil's advocate."

Comply with Instructions

"MAC 40159 is cleared the ILS runway 29 approach. Contact tower now on 126.2." Again, it should be "no-sweat," the weather is severe clear. But what if the tower issues the following instructions?

"MAC 40159, go around, truck on the runway. Execute published missed approach and contact departure on 118.1."

Somehow, you stammer out, "Uh, tower, uh, MAC 159. How 'bout a closed?"

"Negative, MAC 159. Unable closed. Expedite missed approach and contact departure on 118.1."

That was really sweet of the person in the tower, wasn't it? There you were at decision height about ready to go into your pre-flare flare when you heard those positively ugly words, "go around." Well now, ace, seems to me you were saying something about this being a "no-sweat" approach. So why are you, the navigator and the copilot digging so hard to find the approach book you so smugly stashed in the pubs bag thinking you had no further use for it? Because it's clear and a million and we tend to think, "it'll never happen to me," that's why.

Complacency!

Yes, it's true, the pilot was complying with the letter of the law during the

"briefing," but not the intent. Someone had a very good reason for putting in that part about "missed approach." What "they" really meant was for you to actually tell the crew what you plan to do with the aircraft, at least initially, so there won't be any surprises when you suddenly have to take it around. In short, you prepare for the unexpected! When tower issued those infamous instructions to our steely-eyed crew, not only the pilot, but the entire crew was lost. Why? Complacency! Remember that deafening silence after the pilot asked, "Any questions?" There were none then, but there should've been. And why were there no questions? Because the crew didn't want to think about the missed approach. They knew they were going to land. They *expected* to land.

Landing Expectancy

Underlying almost every approach is a subconscious mental attitude called landing expectancy. Anticipatory in nature, it's the belief that pilots will land their plane on the first try on *every* approach- *every* time. Now, we're not saying this is a bad thing. A pilot by nature must have this desire to land. In fact, every crew should have a normal amount of "landing expectancy." But ignoring all possibilities, including go-arounds, plus an unhealthy dose of complacency may adversely affect critical decision-making processes. When this occurs, overall safety awareness and perception suffers, and the results may be nothing short of disastrous.

Why?

Let's answer the question of why with this question: How many times have you actually gone missed approach? If you're like the overwhelming majority, the answer is once or twice—maybe. So, if you've had only one or two actual "for real" missed approaches in your career, you're set to land regardless of actual circumstances. In other words, you're "programmed for landing." You begin to perceive events and external factors as you would like for them to be instead of how they really are. All crewmembers—old pilots, copilots, navigators, engineers and loadmasters—are susceptible to this phenomenon. As a result, everyone must be on constant guard against a "landing expectancy" type incident.

The Cure

Fortunately, there are several ways to prepare for a missed approach and help keep everything in its safe and proper perspective. First, attempt to recognize your mental set. Are you keyed to land regardless? If you are, you can counteract a stronger-than-normal landing expectancy on a conscious level. Overconfidence and complacency can be factors contributing to this "disease." (See November 1981 *TMF*—"A Contagious Disease.") In addition, keep in mind these three things a pilot or crew can do to "keep things in perspective."

- Become familiar with the missed approach environment. The simulator is the best place to practice briefing, flying and coordinating missed approaches. It also provides those varied conditions not available to aircrews on an everyday basis. In a simulator, you can learn what can and can't be done in the cockpit to reduce landing expectancy.
- When briefing the approach, prepare for the missed approach, even when the weather is CAVU and there's absolutely no traffic in the pattern. By doing this, you are practicing for the real thing every time. Then, when the big "go around, truck on the runway" comes, you'll be 100 percent ready. You'll also reduce any uncertainty that may exist in your crew concerning what you are going to do—and what you expect them to do. The job of eliminating complacency involves the whole crew.
- Know your procedures and follow them. Deviation from set standards can be downright dangerous and is an unprofessional approach to flying. You can preplan many decisions in the approach briefing, thus eliminating "guess work" at critical points during the approach. Reviewing procedures during your approach briefing when there's any doubt among the crew also places you one step closer to a successful approach and, if necessary, missed approach.

We all expect to land out of our precisely flown and precisely executed approaches. That's normal and altogether acceptable. Adequate planning and a flexible attitude, though, will prevent us from neglecting all other possibilities and increase the likelihood of a safe landing, even if it's the second time around.

Excellence in Airmanship

Left to right: Capt. Richard D. Newton, AC; Capt. Thomas A. Farrier, CP; and SSgt. Johnnie L. Austin, FE.

Capt. Richard Newton and crew, Detachment 14, 67 ARRS, were flying an HH-3E emergency medical evacuation mission off the coast of Iceland in response to a Soviet fishing vessel's request. After performing a short air refueling which confirmed that fuel transfer could be made, Captain Newton began the pre-pickup checklists and directed an engine health check.

As Capt. Thomas Farrier, the copilot, completed the check of the number 1 engine, the crew heard a loud noise which was accompanied by a rollback of number 2 engine instruments. The crew immediately began bold face procedures for engine failure and turned back to shore. Captain Newton then advised his unit of the problem via a conference skyhook. Meanwhile, Captain Farrier computed fuel required for the return flight and SSgt. Johnnie Austin, the flight engineer, scanned the inside and outside of the aircraft for damage.

The crew was now faced with the task of flying 130 miles back to shore on one engine and keeping that engine healthy. The crew computed single engine performance which

indicated that sufficient power was available, but which placed the remaining engine in the 30 minute range to get all of the predicted power. Due to the 2 hours of anticipated flight ahead, Captain Newton elected to keep airspeed and rotor RPM as low as practical to keep the engine in the continous operating range. Sergeant Austin now reported oil running down the side of the fuselage from the number 2 engine. Given the unknown reasons for the engine failure, Captain Newton elected to delay any restart for the next hour, unless further flight on the good engine became impossible.

Despite fuel dumping and burnoff over the next hour, it became obvious that the number 1 engine required more, rather than less, torque. The power turbine inlet temperature (T5) was also becoming increasingly difficult to keep within safe operating limits. The crew completed additional fuel dumping, but this only provided temporary relief. They also gathered all non-essential equipment for possible jettison.

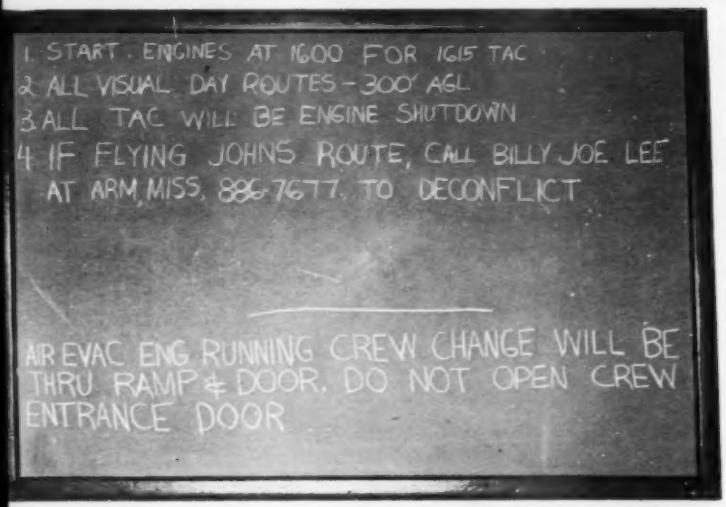
At this point Captain Farrier attempted two restarts of the failed engine but without success. By starting a gradual descent, Captain Newton was able to keep T5 in the lower portion of the 660°-696°C 30 minute military power range until landfall was assured. Since no suitable helicopter landing areas were available, the crew flew the remaining 7 miles to Keflavik with the temperature at the high end of the 30 minute T5 military power range. They landed without further incident after more than 2 hours of over-water, single-engine flight.

Captain Newton and his crew demonstrated superior crew coordination, outstanding systems knowledge, and the highest standards of professional competence. Conducted in a highly stressful situation over a prolonged period, their actions resulted in the safe return of a valuable crew and aircraft. *TMF* salutes this crew's "excellence in airmanship."

2nd Lt. Stephen Jones, Detachment 10, 37 ARRS, was on a routine mission transporting four passengers aboard a single engine TH-1F helicopter. Suddenly, the engine failed at just 600 feet above the ground. Flying the aircraft, Lieutenant Jones immediately had to analyze the emergency, determine the wind and turn into it, and select a suitable landing area, all while trying to regain rotor RPM as he began an autorotation. While the copilot made a Mayday call and relayed the position of the aircraft, the flight engineer had the passengers assume the crash position. Coping successfully with the unexpected, Lieutenant Jones executed a successful autorotation and landing with virtually no ground slide. The crew then rapidly secured the aircraft and the passengers and crew made a quick and orderly evacuation. Lieutenant Jones' quick response to this potentially disastrous situation prevented injury to his passengers and crew and resulted in no damage to the helicopter.

2nd Lt. Stephen M. Jones, AC.

When flying around Arm, Mississippi, be sure to ...


1. START ENGINES AT 1600 FOR 1615 TAC
2. ALL VISUAL DAY ROUTES - 300' AGL
3. ALL TAC WILL BE ENGINE SHUTDOWN
4. IF FLYING JOHNS ROUTE, CALL BILLY JOE LEE AT ARM, MISS. 886-7677. TO DECONFLICT
AIR EVAC ENG RUNNING CREW CHANGE WILL BE THRU RAMP & DOOR. DO NOT OPEN CREW ENTRANCE DOOR

Call Billy Joe

by Lt. Col. Jacob L. Bland, and
Lt. Col. John E. Tabor
172d Tactical Airlift Group (ANG)
Jackson, Mississippi

Billy Joe Lee is a successful farmer who lives in the sprawling "metropolis" of Arm, Mississippi. Billy Joe never gripes about the price of soybeans or cotton, namely because the price stays so high. He just continues to grow a lot of both crops, meanwhile making a lot of money. Now, you'd think that with Billy Joe living so close to the Mississippi Air National Guard base at Thompson Field in Jackson, we would have run into him before we did. But I guess, owing to a little difference in equipment—our Lockheed C-130Hs and his John Deere combine—we never bumped into each other. That is, until about a year ago.

We met Billy Joe one calm spring afternoon while we were flying one of our low-level routes at 300 feet AGL and 230 KIAS. It all happened so suddenly! Right smack dab in our 12 o'clock *level* was an ultra-light aircraft about a mile away. We couldn't tell it at the time, but the pilot of that ultra-light had a right concerned expression on his face. Well, to make a long story even longer, we did your basic aircraft avoidance maneuver and climbed up a little bit to avoid running over him. Our number 2 man followed suit and we were soon back "in the weeds" at 300 feet AGL. Number three, however, noticed that the man in the ultra-light, who turned out to be

Billy Joe Lee, by the way, was frantically waving his arms, trying to maintain some semblance of controlled flight. I suppose it was no surprise, then, to learn that an irate farmer by the name of Lee had called the squadron shortly before we got back. Seemed this fellow was a might concerned about how much we planned to fly his way.

Well, sir, at our next flying safety meeting a couple of weeks later, the flying safety officer for the 172nd TAG related to the squadron exactly what Billy Joe had said when he had called us up on that day a few weeks back.

Seemed that Billy Joe had explained how three C-130s had very nearly destroyed him and his little ole airplane. He explained how a "...young man and his ultra-light were out exploring his own farm land, during his own good time, strapped to his own good airplane..." when suddenly, out of nowhere, these ugly intruders from the "city" appeared and botched up his whole afternoon. Yessir, that's just the way Billy Joe explained it. But Billy Joe, being the true southern gentleman he really is, never once raised his voice beyond a tone of mild concern. In the truest tradition of the south, though, he politely asked us to please call him the next time we planned to be near his place, and left his number with me.

Since that spring afternoon, we've talked with Billy Joe Lee and his mother many times. Both of us—the 172nd TAG and Billy Joe—feel a lot safer now, each knowing what the other is doing and where the other is. Billy Joe doesn't always answer the phone, though. Sometimes his mother will answer and will tell us that, "No, Billy Joe isn't flying today. He's in the cotton field." Sure enough, as we fly over his cotton fields, there's Billy Joe. As we fly by, we give him a salute by dropping a wing—just to let him know we knew where he was.

New Dangers

With the advent of ultra-light aircraft, there are many "Billy Joes" who have never heard about Air Force low-level operations, and how they might affect us and vice-versa. Well, we, down here in the 172nd have thought about this problem and have taken a few steps to at least minimize the hazard potential. We've taken these steps to avoid the myriad crop dusters, ultra-light aircraft and private flying machines that seem to pervade every nook and cranny of the Mississippi River delta country. And while we don't pretend to have all the answers to this on-going problem, what we've done should at least be food for thought.

Although it should go without saying, the first thing we did was go back and review the requirements of AFR 127-2. That regulation contains the basics for starting and running an effective midair collision avoidance program. Then we coordinated with our local air traffic control to de-conflict our departures and arrivals with other aircraft. This one aspect of our program allows us to standardize operating procedures while flying

within the local control area, and also to maintain a continuing dialogue with the FAA.

Next, we coordinate with the FAA Flight Service Stations (FSS) to keep them informed of our "whereabouts." You see, the area around Jackson has been designated a LATNA, or low-altitude training navigation area. Since we can legally fly at 300 feet AGL anywhere within the LATNA, it's important to let the "other person" know where we'll be, and communicating through the FSSs is the best way to do that. Well, that in a nutshell is how we deconflict ourselves while flying on a day-to-day basis. Our overall midair collision avoidance program goes beyond a "day-to-day" approach, however.

To maintain the lines of communication between ourselves, representing the Air Force, and the private flyers, we actively participate with the local FAA regional office in a series of aviation safety seminars within the Mississippi-Louisiana area. The purpose of our participation is to educate as many civilian pilots as possible about our low-level operations. We tell them where we fly, how low we fly, and when we do most of our flying. But we also inform them how to find out when we're actually in the air. In short, we try to make it as easy as possible to get the information to the people who need it the most. Our safety office has also prepared a handout we use at these seminars to further explain our operations.

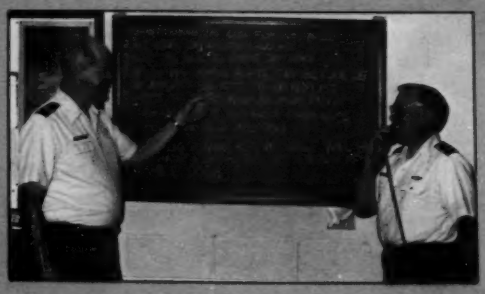
On a more seasonal basis we watch out for for crop dusters. We maintain a continuing dialogue with as many of these *really* low-level flyers as possible, again for our mutual benefit. And just like Billy Joe Lee, once we know where they are, we just climb above a pre-arranged "ceiling" of "their" airspace, normally 300 AGL, and then descend back to our normal enroute altitude once we've past "the third cotton field from the dirt road just off U.S. 40," or whatever.

In the end, the education of both the civilian flyers in our area and our own troops is a cornerstone in the 172d TAG midair collision avoidance program. But it still doesn't relieve us of the responsibility to "see-and-avoid." Needless to say, we're continually on the look out for "VIPs" like Billy Joe Lee who, after all, is just a good old boy who reminded us of a few things which are important to *all* aircrews:

—See and Be Seen,
—Plan Ahead, and;
—When there is a known aerial hazard,
—Don't Fly; or,
—Avoid the Area!

So if you're ever around the Jackson, Mississippi area, ya'll be sure to stop in and partake of some really beautiful country. And if you do head out for some low-level training, please don't forget to call Billy Joe!

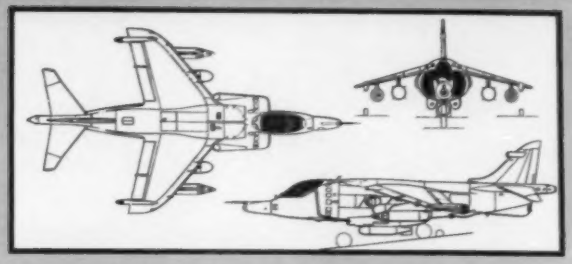
Editor's Note: Sadly, Billy Joe Lee died shortly before we went to press with this article. We felt, though, that Billy Joe would have wanted us to go ahead and print it in the spirit that it would help keep all of us aware of the mid-air collision threat which exists every day we fly. ★



ABOUT THE AUTHORS

Lieutenant Colonels Jacob "Jake" Bland, left, and John Tabor are currently the air operations officer and chief of the command post, respectively, at the 172 TAG. Colonel Bland is a graduate of Mississippi State University, and Colonel Tabor is a graduate of the University of Southern Mississippi. Together, both men have over 20,000 total flying hours divided roughly between them in T-33s, C-119s, C-121s, C-124s, B-26s and C-130s!

World Aircraft Recognition Guide



British Aerospace GR. Mk. 1 Harrier

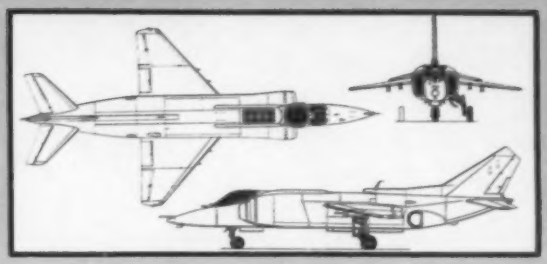
From its first hovering flight in 1960 to today's multi-role attack aircraft, the Harrier still represents the leading edge in V/STOL fighter technology. A more advanced version of this little fighter is the AV-8B, a joint development by McDonnell Douglas and British Aerospace.

The Harrier is a highly maneuverable, durable and versatile attack aircraft, and can take off either vertically or after a short takeoff roll. Using a concept called thrust vectoring in flight, the Harrier is a highly maneuverable air-to-air weapons platform.

The aircraft is distinguished by high-mounted swept wings with negative dihedral and curved tips. Large engine intakes are located on either side of the fuselage and forward of the wing. The swept, tapered horizontal stabilizer is mounted high on the fuselage and also has negative dihedral.

The Harrier is currently in service with the USMC, RAF, RN and Spanish and Indian navies.

Specifications: Harrier
Wing span—25 ft, 3 in. (7.70 m)
Length——45 ft, 7 in. (13.9 m)
Max speed—640+ knots
Tactical radius—260—400 nm
Armament—2x30mm Aden cannon
2xAIM 9L Sidewinders
Assorted air-to-surface weapons



Yakolev Yak-36 Forger

Thought to be strictly a VTOL naval attack fighter, you'll find the Forger wherever you find the USSR's anti-submarine cruisers *Kiev* and *Minsk*. Development of this Harrier imitation began in the mid-60s and the first deployment in an operational role occurred in the mid-70s on the *Kiev*.

Although first thought to possess an internally mounted gun, the Forger has only four external pylons on which to carry weapons. The Forger can in fact carry a total payload of between 3,000 and 4,000 pounds consisting of guns, ECM payloads, bombs, air-to-air and air-to-surface missiles and fuel tanks.

The aircraft can be identified by its mid-mounted delta wings which fold upward at mid-span. The long, tapered fuselage has a pointed, solid nose. Both vertical and horizontal stabilizers are swept and tapered.

Specifications: Forger
Wing span—25 ft (7.6 m)
Length——49 ft, 3 in. (15 m)
Max speed—630 knots (approx)
Tactical radius—200 nm (approx)

Important differences to remember between the Harrier and the Forger concern landing and takeoff modes. The Harrier is capable of short, running takeoffs which increase its ability to carry larger loads (up to 8,000 pounds). The Forger is not. The Harrier is also able to maneuver in flight using its nozzles, something it's believed the Forger can't achieve.

Flying-Hour Milestones

Lt Col John W. Forbrick, 7 MAS
MSgt Christopher J. Rooney, Jr., 109 TAG

Col Marion D. Robertson, Jr., 375 AAW/CV
Lt Col Leslie I. Fujimoto, 75 MAS
Lt Col Lenwood Steward, 1 MAS
Lt Col Phillip B. Vanderwilt, 75 MAS
Maj Raymond C. Becker, 180 TAS
Maj Arthur W. Galbraith, 75 MAS
Maj William J. Larson, 8 MAS
Maj Sherman C. Miller, 41 TAS
Maj Jon L. Nelson, 11 AAS
Maj Ronald K. Peacock, 908 TAG
Maj Harvey E. Peterson, 39 TAS
Maj John F. Pettenger, Jr., Det 2, 1402 MAS
Maj Howard D. Wildove, 109 TAG
Capt Jerry D. Crozier, 75 MAS
Capt William H. Hodges, 1 MAS
Capt Frederick C. Hoffman, Jr., 75 MAS
Capt Robert L. Schuler, 75 MAS
Capt Gary J. Tubbs, 75 MAS
SMSgt Robert G. Smith, Jr., 1 MAS
MSgt Keith W. Baird, 1 MAS
MSgt Antoine P. Chaloux, 75 MAS
MSgt Gordon H. Culver, 41 TAS
MSgt Jon D. Harston, 1 MAS
MSgt Lawrence McDowell, 1 MAS
MSgt Ronald C. Trent, 1 MAS
MSgt Gary L. Villeneuve, 75 MAS
MSgt Barry L. Watts, 1 MAS
TSgt Larry W. Ash, 75 MAS
TSgt Manfred W. Kimball, 357 TAS

Maj Joseph A. Schmitz, 1 HS
Capt Scott J. Aston, 1 HS
Capt Frank J. Pelz, 1 HS
Capt James J. Tananer, 1 HS
MSgt Robert A. Mefford, 1 HS
TSgt William M. Collins, 55 ARRS
TSgt Alan N. Griot, 55 ARRS
TSgt Pat R. Rowland, 1 HS
SSgt Dan E. Wilder, 41 ARRS

Ranks and units are those at time of award. See MACR 900-3 for details on how to apply for your own milestone award.

Mishap With A Moral

C.G. —*The Forgotten Limitation*

Have you ever wondered why we spend all that time before takeoff working those complex weight and balance computations—checking and rechecking? A recent aircraft mishap investigation explains why.

On 16 May 1982, Wein Air Alaska flight 517, a deHavilland DHC-6 Twin Otter, was on a routine flight from Bethel to Hooper Bay, Alaska, with enroute stops at Chevak and Scammon Bay. The aircraft, owned by Clifford Aviation, Inc., was operating under contract to Wein and was manned by two pilots, both experienced in Alaskan operations.

Flight 517 departed Bethel at 0833 Alaskan daylight time with three passengers and 1,633 pounds of mail on board. Following a 0919 arrival at Chevak, two passengers got off and five passengers boarded. The pilots offloaded 950 pounds of mail and cargo, then uploaded 646 pounds of mail and 256 pounds of luggage in the Twin Otter's aft baggage compartment. The crew used a tail stand during the operation, a standard precaution to prevent the aircraft from settling on its tail, especially with the cockpit unoccupied.

Since Wein flights had not landed at Scammon Bay for several days because of the extremely soft and muddy runway, the pilots asked two male passengers to sit in the rearmost cabin seats to "lighten the nose" by moving weight towards the back of the aircraft. Preparations complete, flight 517 departed for Scammon Bay at 0936. Following a short flight, the Twin Otter landed uneventfully at Scammon Bay using what the passengers described as a "shallow descent with high power."

After landing, one of the pilots left the cockpit and placed the tail stand under the aircraft. The crew left one engine running while 278 pounds of mail was removed from the nose compartment, emptying it, and 191 pounds of cargo was removed from the cabin. The station agent was unable to recall if the crew had difficulty removing the stand from beneath the plane prior to departure.

At 0958 flight 517 made a normal departure from Scammon Bay. Later, the passengers reported the pilot raised the nose of the aircraft off the runway early in the flight and flew low over the runway for a short time before beginning the climb towards Hooper Bay.

According to the passengers and witnesses on the ground at Hooper Bay, flight 517 descended over the airport in a southwesterly direction and made a right turn to the final approach for runway 13. The passengers described the approach as seeming higher than similar approaches they had flown in the Twin Otter. They remembered that as the pilot aligned the aircraft on final approach, the nose suddenly pitched up and then the aircraft dropped rapidly. They stated that when the nose pitched up, the pilot yelled at the copilot. Their best recollection of the pilot's words was "I said more power...more power."

The passengers also stated that prior to the nose pitching up the pilot had his right hand on two levers on the overhead panel (propeller controls), and he moved a "square" handle (flap lever). The copilot had his left hand on the other levers on the overhead panel (power levers). The passengers said both pilots were "frantically" moving the overhead levers after the nose pitched up. None of the passengers recalled hearing the stall warning horn.

The Twin Otter subsequently stalled and crashed slightly right (south) of the extended runway centerline, approximately 1,320 feet short of the approach end of runway 13. The aircraft impacted slightly right wing and nose low and slid forward about 50 feet before it came to a stop. There was no post-crash fire.

Both pilots and all six passengers suffered serious injuries in the crash. Due to the severity of their injuries, the pilots were unable to recall the events of the mishap. Local residents assisted the injured.

Analysis

The National Tansportation Safety Board (NTSB) investigators determined the pilots were properly trained, qualified, and certificated to conduct the flight. According to the NTSB, the testimony of the passengers indicated the copilot was flying the aircraft at the time of the mishap.

The investigators quickly ruled out weather as a potential cause factor. They also determined that the aircraft's structures, systems, and powerplants were not at fault in the mishap. The NTSB did discover, however, that several passenger seat belts were worn and frayed. In fact, the seat belt for the left rear-seat passenger failed during the crash and contributed to the severity of his injuries.

The aircraft slid forward about 50 feet before stopping.

As the NTSB investigation evolved, it clearly indicated that the aircraft's longitudinal stability (weight and balance) was the primary event involved in the mishap sequence.

The Clifford Aviation, Inc., FAA-approved operations manual contained procedures for computing the weight and balance of the airplane using "average" weights for passengers and their baggage. The manual also specified that "actual" weights were to be used when a passenger's weight obviously didn't conform with the "average" passenger weight. According to the NTSB, though, there was no evidence that the crew of flight 517 weighed the passengers or their baggage.

The "Bush Station Daily Flight Report" carried by the crew contained entries for mail, cargo, passengers and fuel weights.

However, the report contained an entry for center of gravity (C.G.) only for the departure from Bethel. There were no C.G. entries for departures from either Chevak or Scammon Bay.

In an attempt to figure actual weights and C.G.s for the time of the mishap, the NTSB investigators obtained actual weights for the passengers, their baggage and the cargo and added these to the fuel weights shown on the Twin Otter's fuel indicators. The actual weight of the aircraft at the time of the crash was thus determined to be 10,856 pounds. Using the average weights from the manual and the pilot's estimated fuel weight for departure from Hooper Bay, the NTSB team came up with a weight of 10,646 pounds, a difference of only 213 pounds. The investigators then addressed the C.G. problem.

According to the NTSB, at the Twin Otter's certificated maximum takeoff weight of 11,579 pounds, the forward and aft C.G. limits for the aircraft were 20% mean aerodynamic chord (MAC) and 36% MAC, respectively. Using the actual weights of passengers, cargo and fuel, the investigators calculated that at the time of the mishap the aircraft's C.G. was *47.8% MAC*. Using the average weights, the C.G. was *48.1% MAC*. The team then attempted to determine how the C.G. could be so far out of limits.

The Twin Otter was restricted to a maximum of 500 pounds of cargo in the aft baggage compartment. This included a maximum of 150 pounds on the shelf at the rear of the baggage compartment. At the time of the mishap, however, the aft baggage compartment contained 902 pounds of cargo and baggage, *over 400 pounds in excess of the maximum placarded weight*. Combined with the fuel imbalance (490 pounds in the forward tank and 720 pounds in the aft tank) and the fact two male passengers were asked to sit in the rearmost seats in the cabin, the excesss weight in the aft baggage compartment resulted in an *extremely aft C.G. condition*. Why, then, weren't the pilots aware of the critical C.G. problem?

The NTSB concluded the pilots were unaware of the extreme aft C.G. prior to departing Scammon Bay because they had left one engine running while on the ground. The engine provided a sufficiently large nose-down pitching moment generated by the propeller thrust to compensate for the aft C.G. In fact, the propeller thrust was of sufficient magnitude to allow the pilots to remove the tail stand, a task that would normally have been difficult or impossible given the aircraft's C.G. (During discussions with Gifford Twin Otter pilots, several stated that "...as long as you can get the tail stand out from under the aft fuselage, the airplane would fly." The vice president of Gifford, a non-pilot, reiterated this opinion.) Although the pilots planned for an aft C.G. due to the muddy runway at Scammon Bay, they didn't realize just how *far* aft the C.G. actually was.

It wasn't until the crew reduced power and lowered the flaps for landing at Hooper Bay that they became aware of the true critical longitudinal instability of the aircraft. When they reduced power and lowered flaps, it caused an abrupt pitchup resulting in a significant increase in pitch attitude. The control forces required to counteract this pitching moment were probably considerably greater than the crew had ever encountered or anticipated because of the extreme aft C.G. condition.

Following the pitchup, the aircraft stalled and crashed almost vertically onto the snow and ice. The short ground slide (about 50 feet) and the extreme downward crushing of the fuselage and wings indicated conclusively that the airplane was stalled or was in a post-stall recovery at the time of impact.

Probable Cause

The NTSB determined that the probable cause of this mishap was the flightcrew's failure to compute and properly interpret the airplane's weight and balance. Their operation of the aircraft with the center of gravity substantially aft of its authorized limit resulted in loss of aircraft control during a landing attempt.

Applications to MAC

If you're ever tempted to forget about figuring that Form 365F so you can make the on time takeoff—remember this mishap. An out-of-limits C.G. might give a mishap investigation board the opportunity to write your epitaph. Don't let yourself be suckered into a fatal mistake.

—Adapted from NTSB AAR 82-16

The Fifth Orange

Jake wondered why he had lost his temper and blown up. It had been out of character for Jake. He had always been Mr. Cool, Mr. Smooth, Mr. Persuasive. Yet he had lost his cool. And in front of a two-star, a one-star and five colonels.

Jake had worked hard just to get an audience at the Air Staff, but now 6 months of sweating and conniving was down the tubes with one slip of the tongue. That was not a slip of the tongue, that was a full blown avalanche, Jake thought. In spite of Jake's unfortunate *faux pas*, the program had too much merit to be disregarded.

Maybe all the brass at the meeting would think that Jake's outburst was just the ravings of an overzealous, FIGMO, disgruntled safety type. FIGMO—Jake hated that word, or more correctly acronym, especially now that he *was* FIGMO. What in the world had motivated him to put in his date of separation?

Jake's father, Lt. Gen. Jason K. Jacobson, USAF (Retired) was incredibly disappointed in Jake's decision to leave the military. Four generations of general officers had preceded Jake. He was programmed to be the fifth in what Jake's father presumed was to be a never ending line of General Jacobsons.

The immediate question was, "What could one little captain do to change the system?" Jake had been pushing and prodding, probing and lobbying to get strobe lights and an altitude alert system installed on the wing airplanes, but with no results. "The money isn't there," was the usual response. "We have to do more with less," was another answer.

Well, Jake knew better. He had learned that it was simply a matter of priorities. Jake reflected on his presentation at the Pentagon.

"Gentlemen," he began, "just as three oranges have to come up for a slot machine

Honorable Mention, 1983 MAC Flying Safety Writing Contest

by Capt. Roy W. Partridge, USAFR
932d AAG (Assoc)
Scott AFB, Illinois

to pay off, it takes three significant events to cause an aircraft accident. This is what one journalist labeled as the 'Three Orange Theory' of aircraft crashes.

"In the case of the mid-air collision," he explained, "the first orange is a pilot missing an altitude." Jake continued, "The second orange is the missed altitude going unnoticed by the air traffic controller and the third orange is another airplane being in the same place at the same time.

"Unlikely, yes, but improbable, NO! His-

tory speaks for itself," he continued. "The FAA statistics show that busted altitudes by air carrier aircraft have been virtually eliminated since the inception of altitude alert on civilian airliners.

"Altitudes are still being busted by military fliers, but I don't have concrete proof. No government agency admits to the severity of the problem. There's also the self-imposed oath of silence taken by the pilots. And the reported violations are just the tip of the iceberg! For every one that is reported through channels, there are probably a hundred that go unreported. I myself have missed my share of altitudes with nary a violation.

"Our wing safety shop has conducted a pilot safety survey. The mid-air collision potential was listed as the second most serious safety problem, right behind the ever present fatigue. Even our stan-eval folks concur that an altitude alert system is needed on our airplanes."

Jake started into the heart of his briefing. "Federal air regulations require all air carrier aircraft operating in the CONUS to have an altitude alert system installed. The Air Force operates similar, and in many cases identical aircraft, in the very same controlled airspace. And what's more, our crews average more stops and work longer crew duty days. Yet, somehow, we in the Air Force deem it unneccesary to have altitude alert.

"Why is this?" Jake asked rhetorically. (That's it Jake, don't lecture—ask questions! Get them thinking!) "Are Air Force pilots more professional than commercial airline pilots? Are Air Force pilots more experienced? Surely nobody can believe that. Fully two-thirds of airline pilots are military trained. That's to say they had as much experience when they were hired by the airlines as most of our ACs do now. The average age of an airline pilot is 45, but the average age for active MAC pilots is only 28. The average flying time for an airline pilot is over 10,000 hours, but our air-evac ACs average only 1,000 to 1,500." Jake was on a roll now.

"Why can't we justify the funds to install an altitude alert system that will prevent a crash? All the equipment for altitude alert is installed in the aircraft, except for the altitude selector and the altitude alert computer, both of which are relatively inexpensive. If the installation were to be made at depot, installation costs would be minimal.

"The other point I would like to bring up is the Air Force's near perfect record in aeromedical evacuation flying. There has never been loss of life in air-evac flying due to an

aircraft accident. It's a record in which all of us in the Air Force can be justifiably proud. It would be a shame to sacrifice this record, would it not?" Jake paused to scan his audience. The reception to his question was underwhelming.

Then it happened. One of the colonels accused him of manipulating the data for his own self-serving interests "just like your old man would have." Jake blew up. Jake's expletive was well directed, well articulated, heartfelt, but extremely ill-timed. In always perfect 20/20 hindsight, all Jake would have had to say was, "Excuse me, sir, but I have nothing to gain personally by undertaking this project. I have elected to pursue a career in a civilian capacity."

That was Wednesday. Jake had had a day and a half to lick his wounds and now he had to think about getting his family off to the airport. What a dreary, drizzly Friday. Must be right down at minimums, he thought to himself.

Trying to get the family ready to go anywhere could only be likened to controlled chaos. How any family could be so disorganized was beyond Jake.

Hopefully, he would have more time to spend with his family once he got out. What was he going to do on the outside? The lack of security in the outside world did not scare Jake. He knew he'd be able to find something.

What was security, anyway? To his little 2½ year old daughter Jenny, security was a thumb and a blanket. Jenny's cherubic, little face, with rosy red cheeks, was framed with long, wavey blond hair. Jenny was literally a "baby doll," and she always carried her look-alike doll which could pass for a miniature twin sister.

Jenny worshipped the very ground trod on by her big brother, Jason K. Jacobson IV, or J.J. as she had dubbed him. Trod was probably a good word for the way J.J. walked. Blessed with a birth defect with a name so long that Jake never could pronounce it, J.J. sauntered along with permanently bowed legs. He was the perfect cowboy without ever having ridden a horse.

Jake was going to miss the family while they went out to California to visit Grandpa and Grandma Jacobson. Jake and Betty embraced at the airport for what must have been 10 minutes, but seemed like just seconds.

Their apparent inseparability was

broken by the terminal loudspeaker. "This is the final boarding call for Trans States flight 112 for Los Angeles. All confirmed passengers should now be on board."

"I guess we'd better be going," Betty said, breaking the silence that had marked the ride to the airport.

"Yeah, I guess so," is all the normally talkative Jake could manage for a response.

"Dad, I want a hug," blurted out J.J. Jake

just knew that J.J. had learned to whisper in a saw mill.

"Me too, Daddy, and a kiss," countered sister Jenny, not to be outdone.

J.J. gave his father a big hug, a kiss on the cheek and then did something that surprised Jake. J.J. stuck out his little hand and grabbed his dad's hand. He gave it two vigorous pumps and said, "I'll take care of the women while we're out in California, Dad." There was something so grown up about the way he said it.

Jake bent over, picked up Jenny and exchanged bear hugs and a kiss on each cheek. She looked so cute in her matching hair ribbons and dress.

"Give my love to Grandma and Grandpa," Jake shouted at Betty and the kids as they rounded the corner and stepped onto the airplane.

As he fumbled for his key, Jake could hear the phone ringing in the kitchen. He hoped it was the Air Staff calling with a response to his briefing. He ran over to the phone and gasped "Hello" as he tried to regain his breath. "What is it?"

"We had a crash. Air-evac. Details are kinda sketchy right now. Best info we have indicates the California mission missed an altitude comin' back home and smacked into a commercial jet. MAC is formin' a safety investigation board, but the word we get is that the NTSB is takin' charge of the whole thing. 'USAF to act as technical advisor' is what it says here on the message. Some kinda special interest directed right from the President himself. Seems there were two congressmen on the airliner. Can the NTSB do that?"

"Yeah, I'm afraid so," lamented Jake. "They have carte blanche over all accident investigations. Good grief. *Congressmen on the airliner.* I can't believe it. You know, Cork, the NTSB has never exercised its absolute investigative powers before. They've always let the military do its own thing," Jake rambled. "Boy, oh boy, it's going to hit the fan. Special interest from the President. There's going to be a Congressional investigation for sure. The fourth orange. If the accident required three oranges, then Mr. Murphy just picked the fourth."

"Oranges? What are you talking about?" Corky interrupted. "MAC wants you to be the safety advisor to the accident board. The DO has pulled you off your trip tomorrow and..."

"Hold on Cork," Jake shouted. "There's something on the TV about the crash." Jake couldn't believe his eyes. *There, in the center of his TV screen, was the charred remains of the Jenny look-alike doll.* ✦

ABOUT THE AUTHOR

After receiving his B.S. degree in aeronautical engineering from the University of Minnesota in 1970, Captain Partridge joined the Air Force Reserve. He graduated from Vance AFB in 1972 and now serves as an instructor pilot and squadron flying safety officer with the 932 AAG. When not flying USAF C-9s, Captain Partridge flies for Ozark Airlines.

Stardate Stories

Get ready to write for safety!

These are the voyages of the Midnight Airlift Command. Its 5-year mission: To seek out strange new worlds and new civilizations. To boldly go where no one has gone before (or wanted to)."

Maybe you've just tuned into the wrong channel. We do, regularly! But in our voyages as MAC aviators, we've found real enjoyment in flying MAC's worldwide routes and in gaining professional expertise in handling our crew duties.

As you've matured, we hope that others have instilled safety consciousness in you. More importantly, we hope you're now ready to share your safety ideas with others. In fact, we're counting on it. We even have a suitable medium for you to let others know what you've learned. It's the 1984 MAC Flying Safety Writing Contest which began in November 1983 and ends 31 March 1984.

We've conveniently listed the rules below. Follow them and you can be one of the 12 winners. To further entice you to enter, we'll send you the gift of gifts, a fashionable outer garment treasured and bartered around the world. Yes, it's the newly-procured, cheap-at-half-the-price, much-coveted C.R. Terror designer T-shirt. And we'll also throw in a year's subscription to *The MAC Flyer*, sent directly to you.

We know we can count on all of you authors in the galaxy for prose or poetry of suitable length that will dazzle and delight. Make *sure*, however, that you include an aviation safety or mishap prevention message in your story.

With the gift-giving season upon us, make your knowledge of how to fly our missions safely your gift to others. Show your concern with your literary contribution and you'll be helping us all to keep the command flying safe! That way we'll all be winners!

"Two to beam down to MAC Headquarters, Scotty."

The Rules

The 1984 MAC Flying Safety Writing Contest is conducted according to MACR 900-3 and these rules. All entries must be original, unpublished and postmarked no later than 31 March 1984. Stories must be between 1,000 and 3,000 words long (about 6 to 14 double-spaced typed pages); poetry should be about 75 to 100 lines. Entries must contain an *aviation safety/mishap prevention message.* Manuscripts must be double-space typed and submitted in *two copies.* Identify entries by title only and attach a cover sheet showing the author's name, address, duty phone number and unit. Also, the cover sheet should contain a brief autobiography.

The contest is open to anyone. Entries qualifying under the above rules earn their author a free C.R. Terror T-shirt (*so indicate your size*) and a free 1-year subscription to *The MAC Flyer.* However, contest prizes (desk sets and plaques) may only be awarded to military members and civilian employees of the Department of the Air Force or Air Reserve Forces. Other entrants may be selected for Honorable Mention in a Special Category. All winning stories will be published in *The MAC Flyer.* Entries should be addressed to:

Safety Writing Contest
HQ MAC/IGFE
Scott AFB, IL 62225

Metric Minima

by Capt.Gale E. Clouse, Jr.
Associate Editor

What you hear is what you get!

Special Metric Minima Notice

Ceiling, visibility and RVR minimums may be depicted in meters on approach plates for some overseas locations. The pilot should see the same information on the instrument approach procedure that is used in air-ground communications at each location.

Scene: A MAC crew inbound to Rhein-Main

The copilot remarks, "Frankfurt is reporting a ceiling of 900 feet and an RVR of 2,500 meters. Hey engineer, I wonder what the meters convert to in good ol' American feet? Are we above or below minimums? Do we need to divert or something?"

"Copilot, engineer. The field is above minimums. By the way, we don't have to make conversions anymore. The minima block at the bottom of the approach plate now has the RVR and prevailing visibility in meters. At some locations, the ceiling may also be shown in meters in the weather block. That's what the FCIF item was about and it's in the book legend, too. As usual, you pilots never seem to get the word."

While this pilot was finally getting the "word," we hope you haven't missed it. The purpose of the change to meters is so that aircrews don't have to consult a meters-to-feet conversion chart to determine if a field is above or below minimums when meters is the way the airport reports weather to aircrews. On final in the midst of changing weather conditions isn't the time to worry about metric calculations. Of course, you'll have to be aware of MAC's own minimums published in your aircraft's MACR 55-XXX series.

History

In the 28 October 1983 Europe, North Africa, and Middle East (ENAME) approach procedures, you'll see the ceiling, runway visual range (RVR) and prevailing visibility (PV) are published in meters for some locations. In fact, the ENAME approach books have contained the new depictions since July 1983. First suggested in 1975, the idea of using metric minima was put into effect just this year. The Army, Navy, and Air Force agreed to the concept of metric minima for designated DOD instrument approach procedures in June 1982. The change to metric minima is being implemented *worldwide* to align the depiction on DOD approach plates with what is used in air-ground communications at each location. All flight information publication (FLIP) documents depicting landing minima will incorporate these

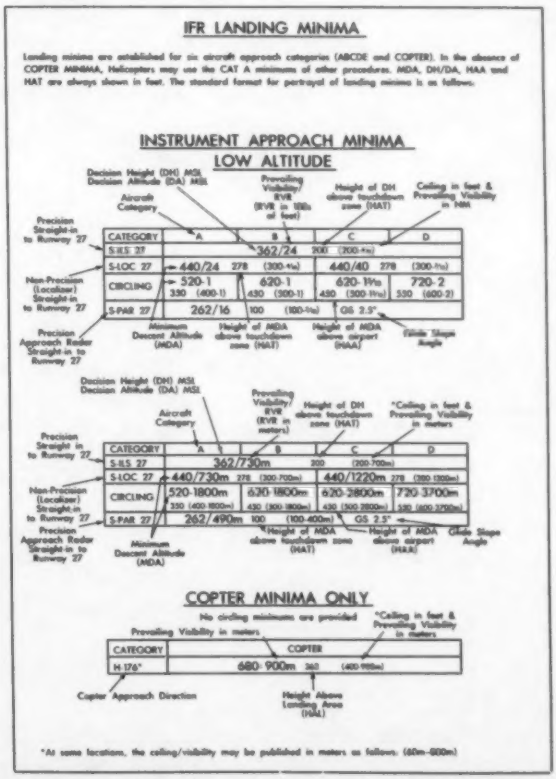


Figure 1. Landing minima as depicted in FLIP approach plates.

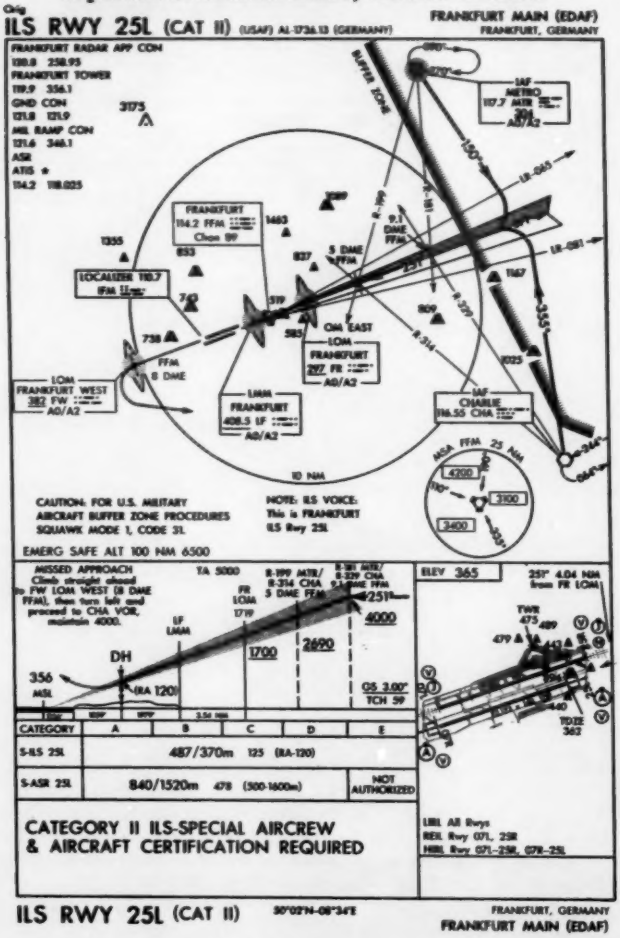
changes as they're revised. Approach plates for the U.S., Canada and other nations are not expected to change to metric minima since aircrews flying in these countries don't get ceiling/visibility reports in metric terms.

Terms

In case you're a little rusty on approach minima, let's review some of the terms:

Ceiling—The height above the airport elevation of the lowest layer of clouds or obscuring phenomena that is reported as "broken," "overcast," or "obscuration," and not classified as "thin" or "partial."

Visibility—The ability, as determined by atmospheric conditions and expressed in units of distance, to see and identify prominent unlighted objects by day and prominent lighted objects by night. Visibility is reported in statute miles, meters or feet.



Prevailing Visibility—The greatest horizontal visibility equalled or exceeded throughout at least half the horizon circle, which need not necessarily be continuous.

Runway visual range—An instrumentally derived measurement that represents the horizontal distance a pilot will see down the runway from the approach end; it is based on the sighting of either high intensity runway lights or the visual contrast of other targets, whichever yields the greater visual range. RVR is horizontal visual range, not slant visual range, and is based on what a pilot in a moving aircraft should see looking down the runway. RVR is used in lieu of RVV and/or PV in determining minimums for a particular runway.

These are only a few definitions. You may want to see FLIP for more.

Away From Nautical Miles

The major change in Europe is that prevailing visibility is now expressed in meters, not nautical miles. In addition, RVR is now being shown in meters at many locations in Europe. In some cases, the RVR may be in feet, with PV in meters. You'll still normally see ceiling depicted in feet in ENAME, although FLIP allows it to be shown in meters.

Review

In figure 1 we show how landing minima are depicted in FLIP instrument approach procedure books. Some helpful hints to remember are: (a) look for the lower case "m" which stands for meters; (b) at some locations, the ceiling/visibility may be published in meters as follows: (60m-800m); (c) MDA, DH/DA, HAA and HAT are always shown in feet.

Conclusion

As with any instrument approach, safety consciousness starts with understanding what is portrayed on the approach plate. A lack of understanding of instrument approach depictions, on the other hand, can not only be annoying—it can also be potentially disastrous. Also, listen closely to the weather terms used.

Well, you've passed your review with flying colors. Now how about figuring that Form 365F in kilos? ★

Deja Vu

Clark Air Base, Philippines

(elevation: 478 feet)

Located on the island of Luzon, Clark Air Base is 43 miles northwest of Manila and 29 miles northeast of Cubi Point Naval Air Station. The terrain in the area is *mountainous*. Within 25 miles, the highest point is a mountain peak, 5,741 feet MSL, 12 miles west. Eleven miles east of Clark, Mt. Arayat rises to 3,366 feet MSL. Within 100 miles of Clark the emergency safe altitude is 11,700 feet.

Clark has one runway, 02/20, 10,500 feet long and 150 feet wide. It is a precision runway with high intensity approach and runway lights, VASIs, arresting gear, jet barrier and has a 1,000 foot overrun on each end.

Approaches to Clark include PAR, ASR, circling, TACAN, VOR, VOR/DME, and ILS. Maneuvering and circling west of runway 02/20 is prohibited due to high terrain and a nearby restricted area.

If you spot any airfield changes not included in the airport qualification programs, notify your MACAF DOT so they can update these programs.

Adapted from AQP 50555

On short final, runway 02.

At 2 miles, runway 20. The approach is over a small town.

On short final, runway 20. A go-around presents little hazard.

C.R. TERROR

The Holiday Honcho spruces up the capital

Tree*mendous!*" the Ace of Aerospace exclaimed to all within earshot of the Starlifter's interphone. "I feel simply tree*mendous!*" Unable to ignore the pun, the crew groaned collectively.

"That was terrible, Boss," remarked Long Suffering Sam in a playfully scolding manner. "Please spare us any more puns about our cargo, all right?"

"*Oak*-ay," shot back C.R., still oblivious to the crew's plight. "I'll quit *needling* everyone and *leaf* you alone." He chuckled in glee and the crew moaned. "I wish everyone would quit *pine*-ing."

"Enough, already. Please spare us," Max Torque begged, waving a white handkerchief in mock surrender. "We give up! If you don't stop, we're all going to *balsam.*"

"Indubitably, Max. Anything for a friend," the Ace of Alibis excused himself, "but I just couldn't help myself, what with that load of boughs and branches in the back. After all," he continued, "it's not everyday one gets to participate directly in a national event like this one."

"I guess you're right, Chief," responded Blinky. "Hauling the national Christmas tree from Maine to D.C. is pretty important."

"*Pretty* important? *Pretty* important? Why Blinky," intoned C.R., "it's the single most important mission next to scheduling an RON at Las Vegas on Super Bowl Sunday."

"Well, maybe," Ty Downs, the loadmaster, spoke up, "but all I know is that it was a bear to load, what with all those needles and sticky sap. If everybody on the crew had *pitched* in, we might have finished sooner." Ty looked pointedly at the Pompous Pilot.

"Loadmaster," shot back C.R., "I am hurt. Why, I *pitched* in back there just like everybody else. I helped spot the K-loader, positioned the chock under the wheel. Why I even carried the coffee and water jugs up the ladder."

"Uh, why don't we call Andrews and get an update on the weather?" Sam hinted. "We're only 30 minutes out and about ready for descent."

"*Capital* idea, Sam m'lad," the Wordy Warrior shot back. "Capital? The nation's capital? Get it?" Yet another collective groan met C.R.'s pun. Sam, in the meantime, had contacted Andrews metro.

"Roger, MAC 40167. Forecast for your arrival is 500 feet and 3 miles with fog and snow. At present, though, both runways are closed. Seems a CT-39 made a gear-down landing on the inside runway."

"What's wrong with that?" queried Sam.

"Oh, nothing," answered the voice at the other end. "But the pilot was so surprised at seeing three green lights, he locked up the brakes on landing, blew both main tires and collapsed the gear. Maintenance should have the runway clear of the plane and debris in about 2 hours. On top of that, the parallel is closed for snow removal."

"We'll see about that,"

huffed C.R. "Andrews dispatch, MAC 40167. This is *Major C.R. Terror* and I'm on a top priority mission. You've got to get that runway cleared. The timely arrival of the national Christmas tree is at stake."

"MAC 40167, this is Colonel Fang!" An ominous, deep voice came from the other end of the UHF. "I don't care if you're carrying Santa Claus himself. The runway is closed for everybody—especially you, C.R."

Fumbling now for an alternative plan, C.R. thought of diverting to Washington's National Airport or Dulles International, but decided even he couldn't get around the military prohibitions at National, and Dulles was buried in new snow. The special handling equipment necessary to move the tree was already in place at Andrews, but delaying the landing by more than 2 hours would mean a diversion. And another day in the dry atmosphere of a C-141 would almost certainly reduce the 70-foot spruce to a brown match stick. Suddenly, a strange object appeared off C.R.'s right wing.

"My gosh," exclaimed Blinky in a gasp. "I don't believe what just pulled up on our wing." Max and Ty instantly rushed to the starboard side of the Starlifter, the sight leaving them breathless.

"I see it, but I don't believe it!" whispered Max, shaking his head.

"What's everybody so up in the air about?" asked the Cynical Yoke-Clutcher, not able to see the apparition. About that time another, deeper voice came over UHF number 2, though quite different from Colonel Fang's.

"MAC 40167, Reindeer 01 on your right wing. Do you have me visually, over?"

"Now I know I'm dreaming! That's really Santa Cla...," Ty was cut off in the middle of his statement.

"Reindeer 01, 167. It appears my crew has a visual on you. Of what service can we be?" asked C.R. matter-of-factly.

"Well, C.R. old chum, I thought I might be able to help *you* out tonight. Ho, Ho, Ho!" C.R. finally recognized the voice from the radio.

"Crimenently! It's you, Santa old bean. Why, I'd recognize that booming bass voice anywhere. What are you doing here? Christmas isn't for another couple of weeks."

"Glad you asked," the red-suited figure responded, pulling up to line abreast position. "Just got the old sleigh here out of PDM and was FCFing it. Those Lapplanders did a fine job, as usual. Ho, Ho, Ho!" Santa continued, "I heard you were having a bit of trouble and thought I could help you out."

"Santa, I'm afraid that not even you could help me tonight—unless you could do something about that Sabreliner on the runway, that is."

"Trust me, C.R.," Santa responded reassuringly. "Just tell Ty to rig that load you're carrying for a heavy equipment airdrop and you, my good fellow, turn on your SKE. Freq 'B' if you please. You take 'master' and slot 02."

"But Santa," questioned the Magic Major, "I didn't think you were SKE-equipped?"

"Wasn't until the last PDM." Santa then pointed out the black radome just behind the cockpit of the modern-looking sleigh. "Not only that, but the boys at LL-ALC also installed a new AWADS. Standby for an FCI check, left to right."

Amazingly, the flight command indicator in front of C.R. lit up, the commands coming in sequence.

"FCI checks good, Santa, er, Reindeer 01. What next?"

"Ho, Ho, Ho! As soon as Ty has that load rigged, run the heavy equipment checklist through the 10-minute warning. Then, you guys just follow me."

With that, the supersonic sleigh pulled by eight reindeer and one special reindeer

in the lead (with a new 3,500 candela strobe light in place of the old rotating beacon, also a product of LL-ALC) jumped out ahead of the Starlizard. C.R., ably assisted by Sam, flew perfect formation position 4,000 feet in trail and 500 feet right of Santa, that is, Reindeer 01. Max and Ty quickly finished the rigging and ran the checklist through the 10-minute warning. It was now up to C.R., the crew and Santa.

"There's a right turn prep," called out Sam, who then called out the 5 second prep and "hack" when the "E" illuminated. At the proper time, C.R. followed the bank steering bar and the suggestions of his able right-seater, who was monitoring the PPI, to maintain perfect position in the soup.

"Boss, are we going to do what I think we're going to do?" asked Max.

"I'm just going to trust that man in the red suit," the SKE Skipper sighed. "He hasn't been wrong in centuries, has he?"

The FCI preps and executes came back until the "formation" was finally heading for the center of Washington, D.C.

"There's the slowdown prep," called Sam. "Hack!"

"Flaps on speed," commanded C.R., rusty flying skills coming back to him after years of neglect and misuse.

"Doors are clear to open in the rear," called Ty, and slowly, the big petal doors of the Starlifter folded into the slipstream.

"One minute down prep. Ten-second down prep. Ready...Ready...Hack!"

"Timing," called Blinky. "Ten seconds! Green light!" Sammy threw the green light and the extraction chute fell out of the bomb shackle and into the slipstream. As advertised, the giant spruce rumbled out the ramp and door and fell away from the '141 toward the fog-shrouded ground below.

"Load clear!" called Ty.

"Clear to close it up."

"Boy, I couldn't see a thing. Think we did right?" wondered Sam.

"We'll find out tonight, Sammy m'lad," reassured C.R. Meanwhile, Reindeer 01 came back on the radio.

"That's all I can do from here, C.R. See all of you in a couple of weeks. Ho, Ho, Ho." And with that, the leader's blip on the PPI moved rapidly away and disappeared off the scope.

A short time later, C.R. and his crew were back at their home station, McMac AFB. As they pulled into parking, a gaggle of blue staff cars, yellow lights flashing, stood in a neat line in front of their spruceless Starlifter. The Rhinestone Flyboy eased the B-model gingerly into parking and shut down the big fans. Almost as soon as the crew entrance door was open, a bevy of colonels bounded up to the flight deck, making all movement impossible.

"Major Terror," screamed the wing commander, "You're a dead man! I hope you have an explanation for your actions. What got into you? Who authorized you to air-drop the national Christmas tree? Who do you think you are?" Suddenly, the wing commander was cut off in mid-tirade by the sound of his "brick" going off.

"McMac command post with a message for Major Terror, sir," crackled the voice of the command post controller. C.R. picked up the brick from the speechless wing commander and took the call.

"Major Terror, here. Go ahead."

"Roger, sir. Standby for a call from the White House." Suddenly, the commotion on the flight deck ceased as a familiar voice came from the brick.

"Well, the nation applauds you, Major Terror, and I certainly thank you. Without your devotion to your mission, a sight that has come to exemplify the holiday season might not have come to pass. You might know the Air Force would be the one able to drop a 70-foot spruce--complete with decorations! Congratulations on a job well done. And by the way, your drop score was a PI!"

This time, even C.R. was speechless! ✭

Quick Stoppers

Ole! Toro!

The aircraft in the following Wild West adventure had fixed landing gear before the event. A few days afterwards, it had its landing gear fixed. The pilot's narrative follows:

"I was supposed to spray this field and I saw that two Black Angus bulls had strayed out of their pastures onto the field. On my second pass attempting to herd the bulls out of the field I reckon I got too low. This one bull made a lunge at me and my left gear hit him in the head. He knocked my left gear off but I killed him dead. I flew around to burn up some gas and flew over to another airport and landed on the soft sod alongside the runway. Wiped off my left spray boom on the landing but otherwise no damage to me or the aircraft. I retrieved the gear, got some new parts, and was flying again in a couple days. After talking with various people, I am now in heavy discussion with my insurance company."

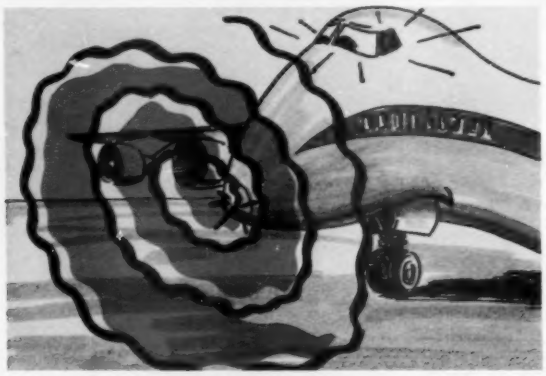
—ASRS *Callback*

Deer Strike

It's a bird. It's a plane. It's a...deer? The C-130 was on takeoff roll from an LZ somewhere in the south. At 70 KIAS, a deer bolted from the side of the runway and into the path of the hurtling Herk. The crew felt a "thump" and aborted the takeoff without incident. The unlucky deer was removed from the runway and the Herk was inspected for damage. After that, the C-130 departed the LZ for the nearby home drome with the flaps at 50 percent and the gear down. Thorough inspection revealed over $2,000 in damages mainly in the form of some denting on the right main gear door.

Trim the Tree

A Jolly Green crew began their landing approach 300 feet above the remote mountainside landing site. As the copilot called "sink 300," the pilot recognized an unsatisfactory approach angle and closure rate and began a go-around. Crossing the site, the pilot headed the helicopter for lower terrain, inadvertently clipping the tops of a 15-20 foot tree. Following the tree-strike, the crew heard no unusual noises and felt no abnormal vibration. In addition, the HH-3E's blade inspection method (BIM) lights did not illuminate. Subsequent investigation found damage to five main rotor blades. Cost for this "trim-the-tree" mishap: $14,000.



Radiating Radars

A 747 first officer reports that on several occasions he has found the radar "on" upon entering the cockpit at the beginning of a trip. In each case, he said, it was a daylight departure and the radar's brightness had been turned down, probably as a result of a night departure on the previous flight. The radiation hazards of aircraft radars are well known and all of us are aware that a dark screen is not the way to determine if a radar is on, off or in standby.

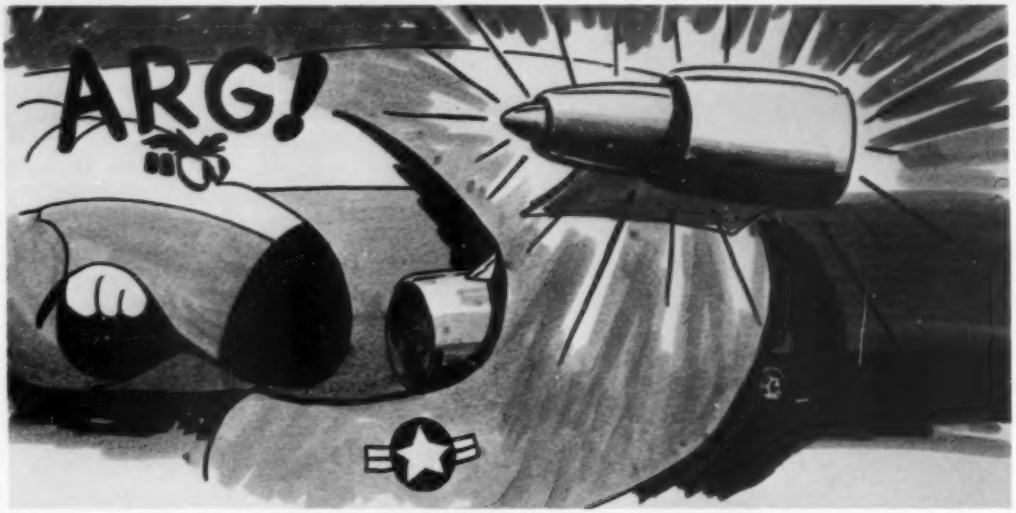
—Cathay Pacific *Flight Safety Review*

Whiteout Warrior

The pilot of a UH-1 was hovering the helicopter 2 to 3 feet over a snow-covered field when he lost visual reference because of blowing snow. The aircraft drifted to the left, the left skid hit the ground, and the aircraft rolled onto its side. Consider the pilot's version of the mishap:

"I picked the aircraft up to a low hover, turned it 90°, and began to move forward. There was no difficulty maintaining ground reference. Overall visibility was at least ½-mile. Suddenly, blowing snow engulfed my side of the cockpit and I lost all visual references. I tried to regain visual contact with the ground and then with the treeline to my immediate left. I felt the helicopter was moving slowly forward and thought I'd be able to see the ground any instant. I told the copilot I couldn't see the ground and he said we were drifting left and down. At that instant, we tipped left and the aircraft rolled."

—Adapted from U.S. Army Safety Center *Flightfax*



De-Modification

Is *TMF* inventing new words again? Not really, although some of our previous spelling oversights have precipitated such charges. A de-modification involves doing something (to a C-5 in this case) which negates the effects of a previously completed modification. Still too complicated? Read on.

Recently a C-5 lost a number 2 engine fire bottle access panel inflight (read "dropped object") which is, unfortunately, all too common with MAC aircraft. What's uncommon, though, is that the number 2 pylon had been recently changed and had been replaced with one containing old-style fasteners which are deficient. The effect of using the old, unmodified fasteners essentially "de-modified" the pylon installation. It seems the new fasteners were designed to prevent the inadvertent loss of panels in flight. One step forward, two steps back.

Notable Quote

By failing to prepare, you are preparing to fail.

After Deadlines

MAC CREWS TEST NEW FLIGHT SUITS—Selected MAC aircrews based at Scott AFB, Illinois, are testing a new blue flight coverall originally developed for the U.S. Navy. These new flight suits will provide suitable fire retardant clothing to aircrews who now wear standard uniforms as flight clothing. MAC Plans officials said the command wants a distinctive, neat-appearing flight coverall to help crews maintain a favorable military image. The coverall may be worn while performing aeromedical airlift duties, distinguished visitor flights, embassy runs and other similar missions. MAC's coverall test began in November 1983 and will end in February 1984 and involves CT-39 and C-9 crewmembers. For more information on this test, contact SMSgt. Al Sines, MAC/XPQT, Autovon 638-3903.

CIVIL RESERVE AIR FLEET ENHANCEMENT—On 23 September 1983, the Air Force signed a contract with Pan American World Airways to modify a B-747-200 aircraft into a cargo-convertible aircraft. The 12-year contract includes options to modify an additional 18 B-747 aircraft by 1998. Average cost per unit for all aircraft will be $26.7 million. These 19 aircraft will add nearly 2.9 million ton-miles of bulk and oversize capability to the CRAF. Information courtesy: HQ MAC/XPW.

STARLIFTER TURNS TWENTY—On 17 December 1963, Mr. Leo Sullivan, Lockheed-Georgia's chief engineering test pilot, flew the first military turbofan transport off the runway at Dobbins AFB, Georgia, at 1245 Eastern Standard Time, and brought MATS into the jet age. Lockheed Model 300, the USAF C-141 Starlifter, was the winner of a design competition for the first military cargo jet.

MATS' new workhorse began flying line missions with the 44th Air Transport Squadron, Travis AFB, California, during the summer of 1965. In November of that year, Starlifters were delivered to Dover and Charleston AFBs. The C-141B "stretch" program, completed in June 1982, extended the length of each Starlifter fuselage by 23.3 feet and added an aerial refueling system. MAC's fleet of 268 C-141s have logged over 6.5 million flying hours as of 1 September 1983. For more information on C-141 enhancements, see May 83 *TMF*, "More Mods for the Starlifter."

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THE MAC FLYER

1983 Index

Title	Issue	Page
Accident/Incident Discussion		
What's It Really Like	Mar	20
Accident Prevention		
Safety Inspection Techniques	Mar	18
1982 Mishap Statistics	Apr	8
Just Another Birdstrike	Oct	3
CINCMAC Holiday Message	Dec	3
After Deadlines		
	Jan-Nov	31
	Dec	30
Allied Airlifters		
Shorts Skyvan, Series 3M	Feb	16
De Havilland DHC-5 Buffalo	Jun	16
AWTH's Corner		
	Jan	12
	Feb	22
	Mar	23
	Apr	10
	May	8
	Aug	24
	Oct	12
C.R. Terror		
Mishandles Multiple Malfunctions	Jan	25
And the Tell-Tale Prop	Feb	25
Flubs Physiological Training	Mar	25
Snares a Sikorsky	Apr	25
Performs an Ocean-Going Touch and Go	May	25
Reveals His Shopping Techniques	Jun	25
Makes a July 4th "Save"	Jul	25
Dings a Wing	Aug	25
Aims to Please	Sep	25
Strikes Again—At Halloween	Oct	25
And the Neophyte Nav	Nov	25
"Spruces" up the Capital	Dec	24
Deja Vu		
Perth IAP, Australia	Feb	24
Torrejon De Ardoz AB, Spain	Mar	24
Osan AB, Korea	Jun	24
RAF Uppper Heyford, U.K.	Sep	24
Toncontin IAP, Honduras	Oct	24
Clark AB, Philippines	Dec	23
Excellence in Airmanship		
	Jan	21
	Feb	12
	Mar	12
	Apr	7
	May	19
	Jun	6
	Jul	18
	Aug	5
	Sep	22
	Oct	6
	Dec	6
Facts, Reports, and Interviews		
Volant Oak 82	Jan	8
Facts, Reports, and Interviews (Con't)		
Mission: Reforger 82 Airdrop	Feb	8
Airlift Heritage	Apr	16
Meet MAC's New Director of Safety	May	3
"Any Time—Any Place"	May	4
Team Spirit 83	Jul	2
Meet MAC's Inspector General	Aug	3
Advanced Airlift Tactics Training Center	Nov	8
Flyer Forum		
	Aug	23
	Sep	15
Flying Hour Milestones		
	Jan	7
	Feb	7
	Mar	7
	May	24
	Jun	12
	Jul	24
	Sep	7
	Oct	5
	Nov	15
	Dec	12
Flying Safety Writing Contest Ads		
New Year's Resolution	Jan	3
Have a Heart	Feb	3
The Deadline Cometh	Mar	3
Only 152 Days Left!	Nov	3
'Tis the Season	Dec	20
Flying Safety Writing Contest		
Farwell to ARRS	Jan	4
Splish Splash, I Was Taking a Bath	Jan	13
The Quick Turn	Feb	4
It's Never Too Late	Mar	4
On Becoming Old Heads	Apr	4
A Last Encounter	May	9
Beware the Devil	Jun	13
The Winners	Jul	3
The Forecast	Jul	4
The Link	Aug	8
Graffer	Sep	3
Out of Airspeed, Altitude and Ideas	Sep	12
An Unheard Voice	Oct	20
We Did It That Way in Vietnam	Nov	12
The Fifth Orange	Dec	16
Instrument		
GCA Accidents—A Look Back	Jan	22
Terminal Approach Development	Feb	14
Navigation Charting	Mar	8
A Laboratory on Wings	May	12
Back to Basics	Jun	18
Timed Approaches	Aug	6
Say Again All After "ATC Clears"	Nov	23
Landing Expectancy	Dec	4
Instrument (Con't)		
Metric Minima	Dec	21
Medical		
Doc Talk—Choo	Apr	23
Personal Survival Kits	Aug	20
Miscellaneous		
1983 Flying Safety Calendar	Jan	16
MAC Safety Directory	Jan	24
A Parting Observation	Apr	3
MAC Air Forces and Services Safety Directory	Jun	15
What the Heck is TMF	Oct	15
Viewers Guide	Oct	23
Index	Dec	31
Mishap With A Moral		
Iced Up	Jan	18
The Final Flight of Pilgrim 458	Feb	18
A Matter of Currency	Jun	21
Sudden Death at JFK	Jul	9
60 Seconds to Live	Aug	12
Midair	Sep	20
Killer Ice	Oct	13
A Failure to Communicate	Nov	20
CG—The Forgotten Limitation	Dec	13
Operations—General		
Battling the Birds	Apr	11
The Chief Pilot	Apr	20
Operations—Fixed Wing		
More Mods for the Starlifter	May	20
C-5—The First 15 Years	Jun	3
Hostile Environment Training	Jul	12
Volant Rodeo 83	Aug	16
Flying In the United Kingdom	Sep	8
C-20A/Gulfstream III	Sep	16
Color Weather Radar	Nov	4
Operations—Helicopter		
Calm Winds	Mar	14
HH-60D Night Hawk	Oct	16
Quick Stoppers		
	Jan-Nov	28
	Dec	27
Safety Awards/Education		
1982 MAC Safety Awards Winners	Mar	16
Roll of Honor	Jul	16
Weather		
Thunderstorms	May	16
Tracking the Storm	Jun	8
Blueprint for Disaster—Microbursts	Oct	8
Icing: The Visible Hazard	Nov	16
World Aircraft Recognition Guide		
F-111E/F—MiG-23/27	Apr	15
F-15—MiG-25	Aug	15
Harrier G.R. Mk.1—Yak-36	Dec	11

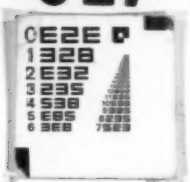
I want you for...

THE MAC Flyer

"1984—That was my favorite year!" You may be able to say that one day, especially if you happen to find just the right "next" assignment. Have you been looking for that *right* assignment—one with fame, fortune, and excitement, (well, excitement at least)? If so, we may have just what you've been looking for.

The MAC Flyer has an opening for an associate editor with reporting during April/May 1984. We're looking for a pilot or navigator with rescue, special operations, or tactical airlift experience. Ambition, initiative, the skill to tell an interesting story and the ability to work with people are definite strengths. A background in English, journalism, or public affairs is also helpful, as is flying safety experience.

This is an exciting position and one which has a definite impact on the way MAC operates. If you have the qualifications and are interested, call Major Lee at Autovon 638-3534, or write in care of *The MAC Flyer,* HQ MAC/IGFE, Scott AFB, Illinois 62225.

Don't wait until it's too late! Make 1984 your favorite year!

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